

AMENDMENTS TO THE CLAIMS:

This listing of the claims will replace all prior versions, and listings, of the claims in this application.

Listing of Claims:

1. (CURRENTLY AMENDED) A method comprising:

receiving a packet at a first device in a first piconet of a scatternet comprising multiple piconets, wherein the packet is for delivery to a destination device in a second piconet of the scatternet and wherein the scatternet has a first network topology including a first route, wherein the first route extends between the first device and the destination device and includes at least one further device;

determining whether it is possible to modify the first network topology by creating a direct radio communications link, between the first device and the destination device, that adds a short-circuit to the first network topology and converts the topology of the scatternet from the first network topology to a second, different, network topology including the first route between the first device and the destination device and also a second route formed by the short-circuit, wherein the second route is different from the first route and extends directly between the first device and the destination device without including another device;

if it is not possible to add the short-circuit,

forwarding the packet within the first network topology of the scatternet; and

if it is possible to add the short-circuit:

creating a new temporary direct radio communications link between the first device and the destination device that temporarily adds the short-circuit to the first network topology and converts the topology of the scatternet from the first network topology to the a second, different, network topology, wherein the topology of the scatternet is not permanently changed; and;

transmitting the packet via the new temporary direct radio communications link of the second network topology.

2. (CANCELLED)

3. (CURRENTLY AMENDED) A method as claimed in claim 1, wherein creating a new temporary direct radio communications link temporarily adds a third piconet that connects the first piconet and the second piconet to the first network topology to create the second network topology.

4. (CANCELLED)

5. (CURRENTLY AMENDED) A method as claimed in claim 1, wherein the first network topology of the scatternet is defined at initiation of the scatternet as a set of links between devices and is not subsequently redefined except for devices leaving and joining the scatternet and wherein creating the new temporary direct radio communications link temporarily augments the defined topology of the scatternet by the addition of an extra temporary link to the set of links but does not otherwise add or remove links from the set of links.

6. – 9. (CANCELLED)

10. (PREVIOUSLY PRESENTED) A method as claimed in claim 1, wherein the packet comprises an address of the destination device and wherein determining whether it is possible to modify the first network topology by adding a short-circuit uses the identity of the destination device to determine whether it is possible to modify the first network topology by adding a short-circuit comprises determining if the destination device is within radio communication range of the first device.

11. (CANCELLED)

12. (PREVIOUSLY PRESENTED) A method as claimed in claim 1, wherein the first device maintains a list of devices within radio communication range.

13. (PREVIOUSLY PRESENTED) A method as claimed in claim 12, wherein the list comprises, for each device within communication range, an address and a clock offset.

14. (CANCELLED)

15. (PREVIOUSLY PRESENTED) A method as claimed in claim 12, wherein determining whether it is possible to modify the first network topology by adding a short-circuit comprises determining whether the destination device is included in the list.

16. (CANCELLED)

17. (CANCELED)

18. (CURRENTLY AMENDED) A method as claimed in claim ~~1~~ 17, wherein the new temporary direct radio communications link is released after a predetermined period of inactivity.

19. (CANCELLED)

20. (CANCELLED)

21. (PREVIOUSLY PRESENTED) A memory tangibly embodying a computer program executable by a processor to enable performance of the method claimed in claim 1.

22. (CURRENTLY AMENDED) A device comprising:

a receiver for receiving a packet via a first piconet of a scatternet comprising multiple

piconets, wherein the packet is for delivery to a destination device in a second piconet of the scatternet and wherein the scatternet has a first network topology including a first route, wherein the first route extends between the first device and the destination device and includes at least one further device;

controller circuitry configured to determine whether it is possible to modify the first network topology by creating a direct radio communications link, between the first device and the destination device, that adds a short-circuit to the first network topology and converts the topology of the scatternet from the first network topology to a second, different, network topology including the first route between the first device and the destination device and also a second route formed by the short circuit, wherein the second route is different from the first route and extends directly between the first device and the destination device without including another device; and configured, in response to a determination that it is not possible to add the short-circuit, to enable forwarding of the packet within the first network topology of the scatternet and configured, in response to a determination that it is possible to add the short-circuit, to enable creation of a new temporary direct radio communications link between the first device and the destination device that temporarily adds the short-circuit to the first network topology and converts the topology of the scatternet from the first network topology to the a second, different, network topology, wherein the topology of the scatternet is not permanently changed; and,

a radio transmitter configured to transmit the packet via a new temporary ~~newly created~~ direct radio communications link of the second network topology.

23. (CURRENTLY AMENDED) A method comprising:

receiving a packet at a first device in a network for delivery to a destination device in the network wherein the network has a network topology including a first route, wherein the first route extends between the first device and the destination device and includes at least one further device;

determining whether the creation of a direct radio communications link between the first

device and the destination device that short-circuits the network topology and forms a second route, different and in addition to the first route, directly between the first device and the destination device is possible;

if it is not possible, forwarding the packet within the network; and

if it is possible, creating a new temporary direct radio communications link between the first device and the destination device that temporarily short-circuits the defined network topology, wherein the network topology is not permanently changed, and transmitting the packet via the new temporary direct radio communications link.

24. (ORIGINAL) A method as claimed in claim 23, further comprising adding an address of the first device to the packet before forwarding it.

25. – 36. (CANCELLED)

37. (CURRENTLY AMENDED) A method as claimed in claim 13, wherein the packet is transmitted via the new temporary direct radio communications link of the second network topology to the destination device using a frequency dependent upon a frequency hopping sequence determined by the address of the first destination device and with a phase dependent upon the clock offset of the first destination device.

38. (CURRENTLY AMENDED) A method as claimed in claim 1 ~~17~~, wherein the new temporary direct radio communications link is released after the packet has been transmitted and the topology of the scatternet reverts from the second network topology back to the first network topology.

39. (CURRENTLY AMENDED) A device as claimed in claim 22, wherein the new temporary direct radio communications link temporarily adds a third piconet that connects the first piconet and the second piconet to the first network topology to create the second network topology.

40. (CURRENTLY AMENDED) A device as claimed in claim 39 22, wherein the first network topology of the scatternet is defined at initiation of the scatternet as a set of links between devices and is not subsequently substantially redefined and wherein the new temporary direct radio communications temporarily link augments the defined topology of the scatternet by the addition of an extra temporary link to the set of links but does not otherwise add or remove links from the set of links.

41. (PREVIOUSLY PRESENTED) A device as claimed in claim 22, wherein the packet comprises an address of the destination device and wherein the controller uses the identity of the destination device to determine whether the destination device is within radio communication range.

42. (PREVIOUSLY PRESENTED) A device as claimed in claim 22, wherein the device maintains a list of devices within radio communication range.

43. (PREVIOUSLY PRESENTED) A device as claimed in claim 42, wherein the list comprises, for each device within communication range, an address and a clock offset.

44. (CURRENTLY AMENDED) A device as claimed in claim 43, wherein the controller is configured to enable transmission of the packet via the new temporary direct radio communications link of the second network topology to the destination device using a frequency dependent upon a frequency hopping sequence determined by the address of the first ~~destination~~ device and with a phase determined by the clock offset of the first ~~destination~~ device.

45. (CANCELED)

46. (CURRENTLY AMENDED) A device as claimed in claim 22, wherein the controller is configured to release the new temporary direct radio communication link after a predetermined period of inactivity.

47. (CURRENTLY AMENDED) A device as claimed in claim 22, wherein the controller is configured to release the new temporary direct radio communication link after the packet has been transmitted and revert the topology of the scatternet to the first network topology.

48. (CANCELED)

49. (CURRENTLY AMENDED) A method as claimed in claim 23, wherein the new temporary direct radio communications link is released after a predetermined period of inactivity.

50. (CURRENTLY AMENDED) A method as claimed in claim 23, wherein the new temporary direct radio communications link is released after the packet has been transmitted.

51. (NEW) A method as claimed in claim 1, wherein the first device maintains a list of devices within radio communication range and determining whether it is possible to modify the first network topology by adding a short-circuit comprises determining whether the destination device is included in the list.

52. (NEW) A method as claimed in claim 23, wherein the first device maintains a list of devices within radio communication range and determining whether it is possible to modify the first network topology by adding a short-circuit comprises determining whether the destination device is included in the list.

53. (NEW) A method comprising:

receiving a packet at a first device in a first piconet of a scatternet comprising multiple piconets, wherein the packet is for delivery to a destination device in a second piconet of the scatternet and wherein the scatternet has a first network topology including a first route, wherein

the first route extends between the first device and the destination device and includes at least one further device;

determining whether it is possible to modify the first network topology by creating a direct radio communications link, between the first device and the destination device, that adds a short-circuit to the first network topology and converts the topology of the scatternet from the first network topology to a second, different, network topology including the first route between the first device and the destination device and also a second route formed by the short-circuit,

wherein the second route is different from the first route and extends directly between the first device and the destination device without including another device,

wherein each node of the scatternet maintains a list of devices within radio communication range and determining whether it is possible to modify the first network topology by adding a short-circuit comprises the first device determining whether the destination device is included in the list maintained by the first device;

if it is not possible to add the short-circuit,

forwarding the packet within the first network topology of the scatternet; and

if it is possible to add the short-circuit,

creating a new temporary direct radio communications link between the first device and the destination device that temporarily adds the short-circuit to the first network topology and converts the topology of the scatternet from the first network topology to the second, different, network topology, wherein the topology of the scatternet is not permanently changed, and transmitting the packet via the new temporary direct radio communications link of the second network topology.

54. (NEW) A device as claimed in claim 22, wherein the device maintains a list of devices within radio communication range and the controller circuitry is configured to determine whether it is possible to modify the first network topology by adding a short-circuit by determining whether the destination device is included in the list.